**Additional Practice Problems - Unit 7**

**\*\*\* Complete the following questions on a piece of notebook paper. You will need to show the completed problems to me before I allow you to retake the quiz!**

**Quiz #1 – Conversions Between Particles & Moles**

1. How many years are in 332,880 hours?

2. Arrange the following from the smallest to the largest number of particles.

a. 1.25 x 1025 atoms Zn

b. 3.56 mol Fe

c. 6.78 x 1022 molecules of glucose (C6H12O6)

3. Identify the particle type of each substance below.

a. Ag b. H2O2 c. NaCl

# 4. How many moles are in 5.58 x 1022 formula units CaCl2?

# 5. Calculate the number of molecules in 9.52 mol ammonia.

**Quiz #2 - Converting Between All Units**

1. How many atoms are in 4.25 mol Zn?

2. How many moles are in 300.0 g Zn?

3. What mass of ammonium phosphate contains 4.76 x 1024 formula units?

4. A sample of carbon tetrachloride has a mass of 2.25 g. How many particles are in the sample?

5. What is the mass of 0.251 moles of aluminum phosphate?

**Quiz #3 - Percent Composition**

1. Determine the percent composition of aluminum oxide.

2. Calculate the percent composition of potassium carbonate.

3. Which has the larger percent by mass of oxygen, H2SO3 or H2S2O8?

4. Which has the higher percent hydrogen - sulfuric acid (H2SO4) or hydrochloric acid (HCl)?

**Quiz #4 - Empirical & Molecular Formulas**

1. The chemical analysis of aspirin indicates that the molecule is 60.00% carbon, 4.44% hydrogen, and 35.56% oxygen. What is the empirical formula for aspirin?

2. Determine the empirical formula of a compound with 65.2% scandium and 34.8% oxygen.

3. Determine the molecular formula for a compound that contains 22.5% Na, 30.4% P and 47.1% O and a molar mass of 306.0 g/mol.

4. Azobenzene is an important intermediate in the manufacture of dyes. It contains 79.1% carbon, 5.55% hydrogen, and 15.4% nitrogen. It has a molar mass of 182.0 g/mol. What is the molecular formula of azobenzene?